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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,198

Applicant(s)

KUROSAWA, AKIRA

Examiner

HANA A. SANEI

Art Unit

2889

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2008.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 1/25/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 2/19/07: 11/13/07
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The Preliminary Amendment, filed on 1/25/06, has been entered and acknowledged by the Examiner.

Claim(s) 1-21 are pending in the instant application.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "two light transmission media," of Claim 21, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: -- Electric lamp with ellipsoidal configuration --.

Claim Objections

Claim(s) 16 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 3. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim(s) 1-5, 7, 15-16, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kpenv (GB Pat. No. 1097409).

Regarding Claim 1, Kpenv teaches a bulb (2, see at least Figs. 1-2) comprising a first curved face (2-3-4, "wall portions ... of an ellipsoid," Col. 2, lines 35-40), the first curved face (2-3-4) having a substantially ellipsoidal shape (Fig. 1) in cross section with a first focal point (f_1 , "a focus of the ellipsoid coinciding with the centre of the sphere," Col. 2, lines 40-45) and a second focal point (f_2 , "the reflected light forms a converging beam, the focal plane being located outside the bulb in the immediate proximity of the film window," Col. 1, lines 21-27), and being convex outwardly (as displayed in Fig. 2), and; a filament (10, "incandescent body," Col. 2, lines 46-47) comprising a coil part ("a wire wound in the form of a single helix," Col. 2, lines 47-50) formed by winding a wire and generating a light by being energized (via 11, "current supply lines"), the filament (10) being so arranged that the coil part is positioned in an inner space of the bulb (2), wherein a reflective coating (13, "mirror layer," Col. 2, lines 60-61) is formed on the whole of outer surface or the whole of inner surface of the first curved face (2-3-4), and the first curved face (2-3-4) is so adapted that the first focal point is positioned at the coil part ("centre of the sphere," Col. 2, lines 40-45), and the second focal point (f_2) is positioned at a light transmission medium ("filters," formed very close to the lamp, Col. 1, lines 29-34) to which an emerged light generated at the coil part (10) and reflected on the first curved face (2-3-4) is provided. Examiner notes that the phrase 'adapted that the first focal point is positioned at the coil part' is not a positive limitation but only

requires the ability to so perform and hence is not given patentable weight. Therefore, examiner considers the structure of Kpenv to meet the structural requirement.

Regarding Claim 2, Kpenv teaches that a second face (2-5-6, "wall portions ... of a sphere," Col. 2, lines 37-40), facing the first curved face (2-3-4), includes a substantially spherical shape.

Regarding Claim 3, 16, Kpenv teaches that the bulb (2) comprises a circumferential face for interconnecting a circumferential end portion of the first curved face (2-3-4) and a circumferential end portion of the second face (2-5-6).

Regarding Claim 4, Kpenv teaches that the second face (2-5-6) includes a flat portion (6-7-6, "flattened wall portion," Col. 2, lines 62-63).

Regarding Claim 5, Kpenv teaches that the flat portion (6-7-6) has a circular shape ("edge 6 is a circle," Col. 2, lines 65-67), and has at least a size of passing almost all of emerged light generated at the coil part at the first focal point (f_1) and reflected (via 13) on the first curved face (2-3-4).

Regarding Claim 7, Kpenv teaches that the second face (2-5-6) has a coating for reflecting (13) a light of a particular wavelength.

Regarding Claim 15, Kpenv teaches that the coil part (10) has a square shape or a circular shape (via "single helix," Col. 2, lines 46-50) as viewed from the light transmission medium side (outside of lamp 2).

Regarding Claim 18, Kpenv teaches that the first curved face (2-3-4) and/or the second curved face (2-5-6) consist of plural portions with different curvatures (Fig. 2 of wall portion 2-5-6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim(s) 6, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kpenv (GB Pat. No. 1097409) in view of Dakin (U.S. Pat. No. 5128589).

Regarding Claim 6, Kpenv teaches the invention set forth above (see rejection in Claim 1 above). Kpenv fails to teach the second face comprising a protrusion portion.

In the same field of endeavor of **glass bulb configurations**, Dakin teaches a lamp (10, "fused quartz envelope," Col. 2, lines 40-43, see at least Fig. 2), wherein a second face (1st side of 10) comprises a protrusion portion (24, "fused quartz protuberance," Col. 2, lines 46-47) in order to provide sufficient heat transfer or dissipation during lamp operation, thereby reducing the overall temperature of the lamp, yielding longer lifetime (Col. 2, lines 46-59). It should be noted that the superimposed protrusion portion (of Dakin) as added to Kpenv renders the protrusion toward the light transmission medium ("filters," formed very close to the lamp, Col. 1, lines 29-34 of Kpenv).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the configuration of the lamp envelope by adding the protrusion portion, as disclosed by Dakin, in the lamp of Kpenv in order to provide

sufficient heat transfer or dissipation during lamp operation, thereby reducing the overall temperature of the lamp, yielding longer lifetime.

Regarding Claim 13, Kpenv-Dakin teaches that an end face of the protrusion portion (24 of Dakin) has a lens effect (by-product of shape of 24, due to radius of curvature, Fig. 2 of Dakin) in order to provide sufficient heat transfer or dissipation during lamp operation, thereby reducing the overall temperature of the lamp, yielding longer lifetime (Col. 2, lines 46-59).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the configuration of the lamp envelope by adding the protrusion portion, as disclosed by Dakin, in the lamp of Kpenv in order to provide sufficient heat transfer or dissipation during lamp operation, thereby reducing the overall temperature of the lamp, yielding longer lifetime.

Regarding Claim 14, Kpenv-Dakin teaches that a reflective coating (13 of Kpenv) is formed on a side face of the protrusion portion (24 of Dakin). It should be noted that the broad phrase "side face" renders the modified protrusion portion (24, as taught by Dakin) as added to the envelope configuration of Kpenv including a reflective coating (13, as taught by Kpenv).

Motivation to combine would be the same as stated in the rejection of Claim 6.

3. Claim(s) 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kpenv (GB Pat. No. 1097409) in view of Yeh (U.S. Pat. No. 6281620 B1).

Regarding Claim 17, Kpenv teaches the invention set forth above (see rejection in Claim 1 above). Kpenv is *silent* regarding composition of the reflective coating.

In the same field of endeavor of **reflective compositions**, Yeh teaches a lamp (10, "lamp," Col. 2, lines 20-21, Fig. 1) wherein the material of a reflective coating (20) is $\text{Ta}_2\text{O}_5/\text{SiO}_2$ in order to provide a material that may accommodate temperatures beyond 500°C and, by providing an infrared reflecting material, the IR rays may be advantageously reflected back to the filament provide further activation (Col. 1, lines, 30-34 & Col. 1, lines 65-67). Examiner introduces the teaching of Yeh, not for the locality of the reflective coating (20), but rather for the teaching of the type of advantageous composition provided.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the composition of the reflective coating, as disclosed by Kperv, in the lamp of Yeh in order to provide a material that may accommodate temperatures beyond 500°C and, by providing an infrared reflecting material, the IR rays may be advantageously reflected back to the filament provide further activation.

4. Claim(s) 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kperv (GB Pat. No. 1097409) in view of Martin et al (U.S. Pat. No. 4078188).

Regarding Claim 19, Kperv teaches the invention set forth above (see rejection in Claim 1 above). Kperv is *silent* regarding gaseous filling.

In the same field of endeavor **incandescent lamps**, Martin teaches a lamp ("incandescent lamp," Col. 1, lines 55-56), wherein halogen is filled in the inner space of the bulb ("an atmosphere of iodine vapor," Col. 1, lines 59-64) in order to provide a filling that functions as a regenerative getter, thereby improving lifetime of the lamp (Col. 1, lines 64-68).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the composition of the gaseous filling, as disclosed by Martin, in the lamp of Kpenv in order to provide a filling that functions as a regenerative getter, thereby improving lifetime of the lamp.

5. Claim(s) 8-12, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramatsu (U.S. Pat. No. 5755505) in view of van der Leeuw et al (U.S. Pat. No. 5471110).

Regarding Claim 8, Hiramatsu teaches a bulb (3, "light bulb unit," Col. 3, lines 49-53), a first curved face (5a, "reflector," Col. 3, lines 66-67), the first curved face (5a) having a substantially ellipsoidal shape ("an elliptic cross-section," Col. 4, lines 1-2) in cross section with a first focal point (f_{1-1} , "one of the two focuses positioned at the light emitting members," Col. 4, lines 21-23) and a second focal point (f_{1-2}), and being convex outwardly, and a second curved face (5b, "reflector," Col. 3, lines 66-67), facing the first curved face (5a), the second curved face (5a) having a substantially ellipsoidal shape ("an elliptic cross-section," Col. 4, lines 1-2) in cross section with a first focal point (f_{2-1} , a resultant point due to configuration) and a second focal point (f_{2-2}), and being convex outwardly, and, wherein the respective reflective coatings (51, 52, respectively, "reflecting surfaces," Col. 4, lines 15-18) are formed on the first curved face (5a) and the second curved face (5b), the reflective coating (51, 52) comprises an opening (5d, 5e, "light transmitting window," Col. 4, lines 6-7) for passing an emerged light generated at a light source (1) and reflected on the first curved face (5a) or the second curved face (5b), the first curved face (5a) is so adapted that the first focal point (f_{1-1} , "one of the two

focuses positioned at the light emitting members," Col. 4, lines 21-23) is positioned at the light source (1, "light emitting member"), and the second focal point (f_{1-2}) is positioned at a light transmission medium (201, "left optical cable," Col. 3, lines 20-23) to which an emerged light generated at the light source (1) and reflected on the first curved face (5a) is provided through the opening (5d), and the second curved face (5b) is so adapted that the first focal point (f_{2-1} , a resultant point due to configuration) is positioned at the light source (1), and the second focal point (f_{2-2}) is positioned at a light transmission medium (201) to which an emerged light generated at the light source (1) and reflected on the second curved face (5b) is provided through the opening (5e). Hiramatsu fails to teach a filament.

In the same field of endeavor of **metal halide lamps**, van der Leeuw teaches a lamp (Fig. 3), wherein a filament ("filaments," Col. 7, lines 59-62) comprising a coil part (16, "coil turns") formed by winding a wire and generating a light by being energized (via external leads), the filament (of 16) being so arranged that the coil part is positioned in an inner space of the bulb (11, "discharge vessel") in order to provide that low wattage metal halide lamps can now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance (Col. 6, lines 25-33).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the discharge electrode, as disclosed by van der Leeuw, in the lamp of Hiramatsu in order to provide that low wattage metal halide lamps can

now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance.

Regarding Claim 9, Hiramatsu teaches that the first curved face (5a) and the second curved face (5b) have the same curvature (Col. 3, lines 66-67 – Col. 4, lines 1-2).

Regarding Claim 10, Hiramatsu-van der Leeuw teaches that the at least one of the openings (5d, 5g) has a circular shape (circular, Fig. 10), and has at least a size of passing almost all of emerged light generated at the coil part (light source 1 of Hiramatsu as modified by van der Leeuw) at the first focal point ($f_{1,1}$) of the first curved face (5a) or the second curved face (5b) and reflected on the first curved face (5a) or the second curved face (5b).

Motivation to combine would be the same as stated in the rejection of Claim 8.

Regarding Claim 11, Hiramatsu teaches that at least one of the openings (5d, 5g) includes a flat portion (Fig. 1, 3, 10).

Regarding Claim 12, Hiramatsu teaches that at least one of the openings (5d) comprise a protrusion portion (5f, 5i) which protrudes toward the light transmission medium (201, 202, Fig. 10).

Regarding Claim 20, Hiramatsu teaches an electric lamp (3, "light bulb unit," Col. 3, lines 49-53) and a light transmission medium (202, "right optical cable," Col. 3, lines 20-23), the electric lamp comprising a bulb (3) comprising a first curved face (5a, "reflector," Col. 3, lines 66-67), the first curved face (5a) having a substantially ellipsoidal shape ("an elliptic cross-section," Col. 4, lines 1-2) in cross section with a first

focal point (f_{1-1} , "one of the two focuses positioned at the light emitting members," Col. 4, lines 21-23) and a second focal point (f_{1-2}), and being convex outwardly, and a second face (5b, "reflector," Col. 3, lines 66-67), facing the first curved face (5a); and the light transmission medium (202) being arranged in the vicinity of the second face (5b), to which an emerged light generated at the light source (1) and reflected on the first curved face (5a) is provided, wherein a reflective coating (51, 52, respectively, "reflecting surfaces," Col. 4, lines 15-18) is formed on the whole of outer surface or the whole of inner surface of the first curved face (5a), and the first curved face (5a) is so adapted that the first focal point (f_{1-1}) is positioned at the light source, and the second focal point (f_{1-2}) is positioned at the light transmission medium (201/202).

Hiramatsu fails to teach a filament.

In the same field of endeavor of **metal halide lamps**, van der Leeuw teaches a lamp (Fig. 3), wherein a filament ("filaments," Col. 7, lines 59-62) comprising a coil part (16, "coil turns") formed by winding a wire and generating a light by being energized (via external leads), the filament (of 16) being so arranged that the coil part is positioned in an inner space of the bulb (11, "discharge vessel") in order to provide that low wattage metal halide lamps can now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance (Col. 6, lines 25-33).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the discharge electrode, as disclosed by van der Leeuw, in the lamp of Hiramatsu in order to provide that low wattage metal halide lamps can

now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance.

Regarding Claim 21, Hiramatsu teaches an electric lamp (3, "light bulb unit," Col. 3, lines 49-53) and two light transmission media (201, 202, "right" and "left optical cable," Col. 3, lines 20-23), the electric lamp comprising: a bulb (3) comprising a first curved face (5a, "reflector," Col. 3, lines 66-67), the first curved face (5a) having a substantially ellipsoidal shape ("an elliptic cross-section," Col. 4, lines 1-2) in cross section with a first focal point (f_{1-1} , "one of the two focuses positioned at the light emitting members," Col. 4, lines 21-23) and a second focal point (f_{1-2}), and being convex outwardly, and a second curved face (5b, "reflector," Col. 3, lines 66-67), facing the first curved face (5a), the second curved face (5b) having a substantially ellipsoidal shape ("an elliptic cross-section," Col. 4, lines 1-2) in cross section with a first focal point (f_{2-1} , "one of the two focuses positioned at the light emitting members," Col. 4, lines 21-23) and a second focal point (f_{2-2}), and being convex outwardly, and; and the two light transmission media (201, 202) being arranged in the vicinity of the first curved face (5a) and the second curved face (5b), respectively, to which an emerged light generated at the coil part and reflected on the first curved face (5a) or the second curved face (5b) is provided, wherein the respective reflective coatings (51, 52) are formed on the first curved face (5a) and the second curved face (5b), the reflective coating (51, 52) comprises an opening (5d, 5e, "light transmitting window," Col. 4, lines 6-7) for passing an emerged light generated at the light source (1) and reflected on the first curved face (5a) or the second curved face (5b), the first curved face (5a) is so adapted that the first

focal point (f_{1-1}) is positioned at the light source (1), and the second focal point (f_{1-2}) is positioned at one light transmission medium (201) to which an emerged light reflected on the first curved face (5a) is provided through the opening (5d), and the second curved face (5b) is so adapted that the first focal point (f_{2-1} , resultant point due to configuration) is positioned at the light source (1), and the second focal point (f_{2-2}) is positioned at the other light transmission medium (202) to which an emerged light reflected on the second curved face (5b) is provided through the opening (5g).

Hiramatsu fails to teach a filament.

In the same field of endeavor of **metal halide lamps**, van der Leeuw teaches a lamp (Fig. 3), wherein a filament ("filaments," Col. 7, lines 59-62) comprising a coil part (16, "coil turns") formed by winding a wire and generating a light by being energized (via external leads), the filament (of 16) being so arranged that the coil part is positioned in an inner space of the bulb (11, "discharge vessel") in order to provide that low wattage metal halide lamps can now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance (Col. 6, lines 25-33).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the discharge electrode, as disclosed by van der Leeuw, in the lamp of Hiramatsu in order to provide that low wattage metal halide lamps can now be made out of straight tubing with conventional press jaws and without an end coat while achieving "standard quality" photometric performance.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Pat. No. 3038372

U.S. Pat. No. 5252886

U.S. Pat. No. 6066919 to Fig. 3 teaches protrusion portions on first and second faces.

U.S. Pat. No. 2219510 to Fig. 1 teaches reflective coating, 17, formed on lamp interior so as to "eliminate the need of external reflectors," Page 1, Col. 1, lines 40-47.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571)-272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571) 272-2303. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Hana A. Sanei /
Examiner

/Toan Ton/
Supervisory Patent Examiner
Art Unit 2889